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IS PHYSICAL ACTIVITY A RISK FACTOR FOR PRIMARY KNEE OR HIP REPLACEMENT DUE TO OSTEOARTHRITIS? A PROSPECTIVE COHORT STUDY

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Purpose: There is conflicting evidence regarding the relationship between physical activity and the risk of osteoarthritis. Total joint replacement is considered a surrogate measure for symptomatic end-stage osteoarthritis. The aim of this study was to estimate prospectively any association between measures of physical activity and the risk of either primary knee or hip replacement due to osteoarthritis.
Methods: Eligible subjects (39,023) were selected from participants in a prospective cohort study recruited during 1990-1994. Primary knee and hip replacement for osteoarthritis during 2001-2005 was determined by linking the cohort records to the National Joint Replacement Registry. A total physical activity level was computed, incorporating both intensity and frequency for different forms of physical activity obtained by questionnaire at baseline attendance.
Results: There was a dose-response relationship between total physical activity level and the risk of primary knee replacement [hazards ratio (HR) 1.04, 95% confidence interval (95%CI) 1.01-1.07 for an increase of 1 level in total physical activity]. Although vigorous activity frequency was associated with an increased risk of primary knee replacement (HR 1.42 (95% CI 1.08-1.85) for 1-2 times/week and 1.24 (95%CI 0.90-1.71) for $\geq$ 3 times/week), the P for trend was marginal (continuous HR 1.08 (95%CI 1.00-1.16), P=0.06). The frequency of less-vigorous activity or walking was not associated with the risk of primary knee replacement, nor was any measure of physical activity associated with the risk of primary hip replacement.
Conclusions: Increasing levels of total physical activity are positively associated with the risk of primary knee but not hip replacement due to osteoarthritis. Physical activity might affect the knee and hip joints differently depending on the pre-existing health status and anatomy of the joint, as well as the nature of physical activity performed.

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WOMEN LOSE PATELLA CARTILAGE AT A FASTER RATE THAN MEN: A 4.5YEAR COHORT STUDY OF SUBJECTS WITH KNEE OA

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Purpose: Patellofemoral knee osteoarthritis (OA) is a common disease, and a significant cause of knee pain. Despite this, few data have examined longitudinal change at the patellofemoral joint. The aim of this study was to identify factors affecting change in patella cartilage.
Methods: Seventy-seven subjects (58% female) with knee OA underwent magnetic resonance imaging (MRI), with a repeat MRI of the same knee obtained approximately 4.5 years later. Risk factors measured at baseline were tested for their association with annual change in patella cartilage volume, and annual percentage change.
Results: After adjusting for age, gender, BMI and patella bone volume at baseline, cartilage change was observed at the rate of 2.5% (95% confidence interval, 2.0, 3.0) over 4.5 years. Cartilage was lost at a higher rate in women compared to men after accounting for age, BMI or bone volume at baseline (3.3 vs 1.4%, respectively, p = 0.03). Increased patella bone volume was associated with increased patella cartilage loss (p=0.02). No measures of radiographic severity of disease affected change in cartilage volume.
Conclusions: The increased rate of cartilage loss in women may contribute to the increased prevalence of disease, although the underlying mechanism requires further study. Increased patella bone volume was also associated with increased patella cartilage loss. Whether this is due to biomechanical factors will need to be determined

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MEAT CONSUMPTION AND RISK OF PRIMARY HIP AND KNEE JOINT REPLACEMENT DUE TO OSTEOARTHRITIS

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Purpose: It is unknown whether meat consumption may affect the risk of osteoarthritis (OA). Total joint replacement is considered a proxy measure for end-stage symptomatic OA. We performed a prospective cohort study to examine the relationship between meat consumption and the risk of primary hip and knee replacement for OA.
Methods: 35,331 participants of the Melbourne Collaborative Cohort Study, recruited during 1990 and 1994 were eligible for this analysis. Consumption of fresh red meat, processed meat, chicken, and fish was assessed using a food frequency questionnaire at baseline attendance. Primary hip and knee replacement for OA during 2001 and 2005 was determined by linking the cohort records to the National Joint Replacement Registry.
Results: 888 participants with primary hip and knee replacement were identified over 12.6 years of follow-up. There was a negative dose-response relationship between fresh red meat consumption and the risk of hip replacement (hazard ratio 0.94, 95% confidence interval 0.89-0.98), whereas no association with the risk of knee replacement was observed (hazard ratio 0.98, 95% confidence interval 0.94-1.02). Consumption of processed meat, chicken and fish were not associated with the risk of hip or knee replacement.
Conclusions: A high level consumption of fresh red meat is associated with a decreased risk of hip, but not knee, joint replacement. The mechanism of this finding, whether it is due to a real biologic effect, possibly via an effect on hip bone shape, or as a result of residual confounding due to socioeconomic factors, or both, warrants further investigation.